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UDC 616.33-091-02:[616.453+616.831.371]-008.1

KRYSHEN', P. F., KOLPAKOV, A. A., TKACH, YU, I., SAKOVICH, I. V., and CHUICH, N.A.
Pathophysiology Laboratory, Dnepropetrovsk Institute of Gastroenterology

"Functional State of the Central Nervous System and Pathological Changes of the
Stomach Mucosa of Immobilized Rats"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 6,
Nov/Dec 72, pp 48-51

Abstract: The immobilization of rats for 24 hr (by tying them to boards) produced the excitation and inhibition states. The excitation state reached the peak in 4-5 hr. During this period the animals tried to escape, at first every 5-20 sec, then every 10-50 sec. The number of heart beats and respiration amounted to 447 ± 16 and 106.8 ± 3.9 per min, respectively. The inhibition state occurred in 4-5 hr during which the respiration and the number of heart beats decreased to 86.6 and 304, respectively. The contraction of muscles was slow and attempts for escape were repeated only 1 every 1-5 min. Anatomical studies of the stomach walls showed the presence of hemorrhages (0.1-2.5 mm in diam.), the blood vessels were dilated and full of blood in the mucous coat, as well as in muscle layers in some cases. Accumulation of lymphocytes, neutrophils, and histiocytes was detected under the mucous coat. The forceful
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KRYSHEN', P. F., et al., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 6, Nov/Dec 72, pp 48-51

immobilization caused an extreme excitation of the central nervous system, muscular, cardiovascular, and respiratory systems. The excessive activity of these systems for 4-5 hr consumed the energy reserves of the animal organism and inhibition followed. The central nervous system was affected first, followed by the inhibition of the muscular, cardiovascular, and respiratory systems.

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1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--THE PRINCIPLE OF DYNAMIC INTERACTION IN THE GENERAL X RAY
DIFFRACTION THEORY -U-
AUTHOR--KOLPAKOV, A.V.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. USSR, VOL. 11, NO. 1, P.
89-90 1970
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--X RAY DIFFRACTION, DIFFERENTIAL EQUATION SYSTEM, CRYSTAL
LATTICE ENERGY, ELECTROMAGNETIC INTERACTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1990/1325 STEP NO--UR/0138/70/011/001/0089/0090
CIRC ACCESSION NO--AP0109409
UNCLASSIFIED

2/2 021 .UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0109409
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS INVESTIGATION OF THE
PRINCIPLE OF DYNAMIC INTERACTION IS BASED ON A MODEL ADMITTING ONLY NON
LOCAL ENERGY EXCHANGES BETWEEN DIFFRACTION BEAMS OF X RAY RADIATION IN
CRYSTALS. IT IS SHOWN THAT THE PROBLEM LEADS TO THE SOLUTION OF A
SYSTEM OF COUPLED DIFFERENTIAL EQUATIONS.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--ON THE ECONOMIC RELATIONS AND PROPORTIONS OF THE RSFSR NATIONAL
ECONOMY -U-
AUTHOR--KOLPAKOV, B., SEMENOV, A. *R*
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, VOPROSY EKONOMIKI, NO 1, JAN 70, PP 39-49
DATE PUBLISHED----JAN70
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--ECONOMIC ANALYSIS, CYBERNETIC ECONOMIC PLANNING, PUNCHED CARD,
ECONOMIC SYSTEM, INDUSTRIAL PRODUCTION/(U)MINSK DIGITAL COMPUTER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/1479 STEP NO--UR/9109/70/000/001/0039/0049
CIRC ACCESSION NO--AP0107911

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UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RSFSR CENTRAL STATISTICAL ADMINISTRATION HAS WORKED OUT AN EX POST (OTCHETNYY) INTERSECTORIAL BALANCE OF THE PRODUCTION AND DISTRIBUTION OF OUTPUT IN THE RSFSR NATIONAL ECONOMY FOR 1966. IT DISTINGUISHES 103 SECTORS OF MATERIAL PRODUCTION, INCLUDING 93 INDUSTRIAL SECTORS, TWO AGRICULTURAL SECTORS (CROP PRODUCTION AND LIVESTOCK PRODUCTION), FORESTRY, CONSTRUCTION, FREIGHT TRANSPORT AND COMMUNICATIONS, TRADE AND PUBLIC CATERING, PROCUREMENTS, MATERIAL TECHNICAL SUPPLY, AND OTHER SECTORS OF MATERIAL PRODUCTION AND SIX SECTORS OF THE NON-PRODUCTIVE SPHERE (THE HOUSING AND MUNICIPAL ECONOMY, PASSENGER TRANSPORT (AND) COMMUNICATIONS ENTERPRISES FOR THE SERVICE OF THE POPULATION, EDUCATION, PUBLIC HEALTH, CULTURE, SCIENCE AND ADMINISTRATION). PUNCHCARD EQUIPMENT AND A "MINSK-22" ELECTRONIC COMPUTER WERE USED IN DEVELOPING THE INTERSECTORIAL BALANCE. THIS ARTICLE DISCUSSES THE INTERSECTORIAL BALANCE AND WHAT IT INDICATED.

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USSR

UDC 612.26

SHUMITS'KA, N. M. and KOLPAKOV, E. V. Department of Comparative Pathology, Institute of Physiology imeni O. O. Bogomolets, Ukrainian SSR Academy of Sciences

"Comparative Study of Tissue Respiration of Heterothermal and Homoiothermal Animals in Hypoxia"

Kiev, Fiziologicheskii Zhurnal, Vol 17, No 1, Jan/Feb 71, pp 62-67

Abstract: Susliks (*Citellus suslica*) and white rats were used in experiments to determine the possible role of tissue factors in the accommodation of the organism to hypoxic conditions. For comparative purposes intact rats were decapitated, and organs -- large hemispheres, liver, kidneys, myocardium, and others -- were excised, cut into uniform sections, and in a suspended form placed into a gas chamber containing 1.3-1.8% of oxygen. Simultaneously a group of experimental susliks and rats after preliminary hematological examination were placed in an altitude chamber under conditions simulating an altitude of 7.5-8.5 m.

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SHUMITS'KA, N. M. and KOLPAKOV, E. V., *Fiziologicheskiy Zhurnal*, Vol 17, No 1, Jan/Feb 71, pp 62-67

and kept there for a period of 180 hours.. Within 16-18 hours after the end of exposure of the animals to hypoxic conditions, they were again subjected to a hematological examination and sacrificed. At the same time the intensity of oxygen consumption by tissue sections placed in the gas medium was determined. Parallel studies established that in both cases increased oxygen absorption by tissues, particularly tissues such as the cerebral hemispheres and the myocardium which are particularly sensitive to oxygen insufficiency, and intensified respiration play an important role in the accommodation of the organism to hypoxia. However, further research work, particularly with animals living at high altitudes, is necessary in order to obtain further data.

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USSR

UDC 612:018.577.49

KOLPAZOV, M. G., KOLAYEVA, S. G., and SHABUROVA, G. S., Institute of Physiology, Siberian Department, Academy of Sciences USSR, Novosibirsk

"Seasonal Rhythms in the Functioning of the Endocrine System in Hibernating Mammals"

Moscow, Uspekhi Fiziologicheskikh Nauk, Vol 3, No 1, 1972, pp 52-68

Abstract: The article reviews 72 publications (dating from 1926 to 1970) concerning seasonal fluctuations and interrelationships of endocrine glands in hibernating hedgehogs, hamsters, squirrels, gophers, jerboas, and other mammals. During the waking season, the endocrine system of these animals is organized in the same pattern as that of other mammals. During the hibernating season, the hypothalamus and the hypophysis lose some of their master control function, while the autonomy of other glands, especially the pancreas, parathyroids, and adrenal cortex, increases. Typically, the secretion of cortisone and insulin exceeds the output of the other hormones produced by the adrenal cortex and pancreas. The year is divided into three periods with several phases: 1) homeothermic period (Apr-Aug) with a) phase of explosive endocrine activity (Apr-May), b) phase of rapid decrease (Jun), and c) phase of stabilization (Jul-Aug); 2) transitory period (Sep-Oct); and 3) hibernation period (Oct-Mar)

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KOLPAKOV, M. G., et al., Uspekhi Fiziologicheskikh Nauk, Vol 3, No 1, 1972, pp 52-68

with a) phase of initial sleep (Oct-Nov), b) phase of deep sleep (Dec-Jan), and c) phase of preparation for arousal (Feb-Mar).

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UDC 51:621.391

KOLPAKOV V. I.

"The Correspondence Between Monotonic Functions and a Set of Buffer Tests for Tables"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 16, Novosibirsk, 1970, pp 44-50 (Translated from Referativny Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V361 by G. Blokhina).

Translation: Every binary matrix can be compared to a monotonic logical algebra function which becomes equal to unity in and only in those sets, the unity coordinates of which form a test of the initial matrix. The reverse is generally not true. It is demonstrated in this article that for any monotonic function of n variables there is a matrix with $n+p$ columns ($0 \leq p < n$), such that the function is equal to unity in and only in those sets, the unity coordinates of which, together with the columns of this matrix having numbers greater than n , form a test of the matrix. Thus all functions can be classified depending on the values of p . One sufficient condition for inclusion of functions in a class corresponding to $p=0$ is presented.

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AGARTANOV, V. N., ANTIPOV, V. B., KOLPAKOV, V. V., FEDORIN, Ye. M., Tomsk State University

"Effect of Intense Optical Emission on the Threshold of Instability of Spin Waves in the Case of Parallel Pumping"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 8, Aug 72, pp 2446-2448

Abstract: A single crystal of yttrium ferrite-garnet in the form of a rectangular prism measuring $3 \times 4 \times 13$ mm, with polished faces, having its axis coincident with crystallographic direction [111] was placed in the center of a reflective cylindrical cavity with TE_{011} mode in such a way that the axis of the specimen coincided with the axis of the cavity. Pumping was by 300- μ s square pulses with a prf of 9.4 GHz. LDTI-68 laser emission was focused normal to the surface of the crystal in the center of the side face. A reduction was observed in the threshold of instability of spin waves which was attributed to the absorption of SHF power by particles knocked from the surface of the specimen into the cavity region where there was a strong alternating electric field.

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USSR

UDC 612.26

SHUMITSKAYA, N. M. and KOLPAKOV, Ye. V., Department of Comparative Pathology, Institute of Physiology imeni A. A. Bogomolets, Academy of Sciences UkSSR

"Comparison of Anaerobic Processes in the Tissues of Heterothermic and Homoiothermic Animals After Prolonged Exposure to Hypoxia"

Kiev, Fiziologichniy Zhurnal, No 3, 1971, pp 379-384

Abstract: Hematopoiesis and anaerobic and aerobic glycolysis were studied in the brains and skeletal muscles of heterothermic (susliks) and homoiothermic (Wistar rats) animals after exposure to hypoxia in a pressure chamber for 1 to 2 weeks at an "altitude" of 6,000 to 8,500 m. Lactic acid was determined by calorimetry. In the adapted rats and, to a lesser degree, susliks, differences were found in the content of preformed lactic acid in brain tissues compared with the controls and the hematopoietic reaction was more pronounced. There was also more intense activity of the anaerobic processes (anaerobic and aerobic glycolysis) in the brains of the experimental animals compared with the controls of their own species. The direct Pasteur effect was not impaired. The differences between the rodent species during the prolonged exposure to hypoxia are attributed to ecological factors.

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UDC: 535.36+535.518

KOLPAKOV, Yu. D. and SKRIPOV, V. P.

"Measuring the Degree of Depolarization of Dispersed Light Near the Carbon Dioxide Critical Point Using a Helium-Neon Laser"

Leningrad, Optika i Spektroskopiya, Vol. 29, No. 4, 1970, pp 761-764

Abstract: It is asserted that there is little experimental work on the degree of depolarization of the scattered light near the critical point, since the observation results are complicated by multiple scattering. The authors, however, suggest a method of reducing the multiple scattering in a stratified solution in which the components have closely similar indices of refraction. In the experiments described in this paper, the light originated in a helium-neon laser LG-34N, with a wavelength of 0.633 μm and an angular divergence of 0.5'. The experimental apparatus has been described in detail in earlier articles published in the journal named above (Yu. D. Kolpakov and V. P. Skripov, 19, 1965, p 392; 24, 1968, p249). The measurement of the degree of depolarization was conducted in a narrow temperature interval in the neighborhood of the CO₂ critical point, the critical temperature being 31.06° C and the critical pressure 74.0 bars.

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UDC:622-503

PROKOF'YEV, V. N., KOLPAKOV, Yu. G., Moscow

"Influence of Elasticity in Hydraulic System on Forced Harmonic Oscillations"

Moscow, Mashinovedeniye, No 5, Sep-Oct 70, Pages 33-40

Abstract: The dynamics of a hydraulic drive system with closed control loop, operating with a fluid whose modulus of elasticity depends on the pressure drop are studied. Conditions of stability and the possibility of sudden resonance are established. The amplitude-frequency characteristics are analyzed and areas of existence of solutions determined. The transient process is calculated and the possibility of subharmonic oscillations in case of a harmonic input signal is analyzed. Six illustrations, seven biblio-refs. From author's abstract.

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Electrochemistry

USSR

UDC 661.143.545.641(088.8)

TOROPOV, N. A., SOKOLOV, A. N., KOLPAKOVA, A. A., TARASOVA, L. YE., Leningrad
Technological Institute imeni the Leningrad

"A Method of Synthesizing Quick-Response Cathodoluminescent and Photoluminescent
Phosphors"

USSR Author's Certificate No 243758, filed 2 Jun 67, published 14 Dec 71
(from RZh-Khimiya, No 11, Jun 72, Abstract No 11L234 P)

Translation: This Author's Certificate introduces a method of synthesizing
quick-response cathodoluminescent and photoluminescent phosphors based on
lanthanide-activated yttrium compounds by mixing the components of the charge
with subsequent sintering. In order to expand the variety of quick-response
phosphor compositions with elevated chemical stability and high resistance
to electron bombardment, a yttrium silicate is used as the yttrium compound
with a $Y_2O_3:SiO_2$ ratio of 1:1-3, and the lanthanide is added in a concentra-
tion of 0.5-4 wt.%. Example. The initial raw materials for synthesizing the
compositions are: Y_2O_3 containing 99.99% of the base substance (RTU No 1185-64);
phosphor grade SiO_2 ; oxides of the lanthanide series CeO_2 , Sm_2O_3 , EuO , Pr_6O_{11} ,
 Er_2O_3 , Tm_2O_3 , etc. or their mixtures. A charge containing 65.2 wt% Y_2O_3 and

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TOROPOV, N. A.; et al., USSR Author's Certificate No 243758, filed 2 Jun 67, published 14 Dec 71 (from RZh-Khimiya, No 11, Jun 72, Abstract No 11L234 P)

34.8 wt% silica preintered at temperatures of 1100°C and 800°C respectively is thoroughly mixed and briquetted with subsequent annealing at 1350°C isothermal holding at this temperature for 4 hours. The specimens are slowly cooled and pulverized, and then the oxides of the lanthanide series are added. Briquetted specimens are again annealed with isothermal holding at 1350°C for 2.5 hours. The resultant phosphor, e.g. (1.5 wt. %) cerium activated Y_2O_3 · $2SiO_2$, has blue luminescence with λ_{max} of 410 nm, an emission brightness equal to 140% of that of the industrial phosphor grade A-1 (Al_2O_3 -CeO), and after-glow of the order of 10^{-6} s for a drop in brightness to 5%. H. Sh.

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Pharmacology and Toxicology

USSR

UDC 615.916:546

KOLPAKOVA, A. F.

"Toxic Effect of Nickel and Cobalt Compounds When They Penetrate the Skin into the Organism"

Nauch. tr. Irkutsk. med. in-t (Scientific Works of Irkutsk Medical Institute), 1972, vyp 110, pp 109-110 (from RZh--Farmakologiya. Khimioterapevticheskiye Sredstva. Toksilologiya, No 3, Mar 73, Abstract No 3.54.641)

Translation: Rabbits which received five percent solution of nickel fluoride (I) rubbed on the skin for 10 to 12 days developed dermatitis, torpidity and loss of appetite. A reduction in weight was noted. After 20 to 30 days, 4 out of 15 of the rabbits died. Dystrophic changes, diffuse infiltration of leukocytes and Ni were noted in the liver and kidneys. Nickel in the amount of $1.45 \pm 0.02 \text{ } \gamma/\text{cm}^2$ and Co in the amount of $1.94 \text{ } \gamma/\text{cm}^2$ penetrated the isolated skin of human cadavers.

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USSR

UDC 547.241.07

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KABACHNIK, M. I., MEDVED', T. Ya., LASTOVSKIY, R. P., KOLPAKOVA, I. D.,
URINOVICH, Ye. M., KRINITSKAYA, L. V., and MIRONOVA, Ye. I.

"A Method of Making Hydroxyethylidenediphosphonic Acid"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki,
No 5, Feb 71, Author's Certificate No 292984, Division C, filed 2 Jun 69,
published 15 Jan 71, p 101

Translation: This Author's Certificate introduces: 1. A method of making hydroxyethylidenediphosphonic acid by interacting phosphorus trichloride with acetic acid in the presence of heat. As a distinguishing feature of the patent, the process is simplified by adding acetic anhydride to the initial mixture. 2. A modification of this method distinguished by the fact that the phosphorus trichloride, acetic acid and acetic anhydride are present in the mixture in a molar ratio of 1:2:1. 3. A modification of this method in which the process is carried out at a temperature of 35-120°C.

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1/2 010
TITLE--COMPLEXONES -U- UNCLASSIFIED PROCESSING DATE--16OCT70
AUTHOR-(03)-DYATLOVA, N.M., TEMKINA, V.YA., KOLPAKOVA, I.D.
COUNTRY OF INFO--USSR
SOURCE--COMPLEXONES (KOMPLEKSONY) MOSCOW, KHIMIYA, 1970, 416 PP
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--COMPLEX COMPOUND, CONJUGATE BOND SYSTEM, MONOGRAPH, RARE EARTH METAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/0561 STEP NO--UR/0000/70/000/000/0001/0416
CIRC ACCESSION NO--AM0110363
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AM0110363

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5. INTRODUCTION 17. PART I. FUNDAMENTAL RULES AND INVESTIGATION METHODS OF THE COMPLEXING PROCESS 11. CHAPTER 1 FACTORS EFFECTING THE COMPLEXING PROCESS 11. 2 BASIC PHYSICO CHEMICAL METHODS FOR INVESTIGATION OF COMPLEXONES AND THEIR COMPLEXES 37. PART II. THE EFFECT OF STRUCTURE OF COMPLEXONES ON THEIR COMPLEXING ABILITY 80. CHAPTER 1 THE EFFECT OF BASICITY OF THE NITROGEN ATOM OF THE IMINOACETATE GROUP ON THE STRENGTH OF FORMED COMPLEXES 81. 2 CARBOXYALKYLATED AMINES 84. 3 COMPLEXONES CONTAINING HETEROATOMS, OXYGEN, NITROGEN, SULFUR IN THE HYDROCARBON CHAIN OF ALIPHATIC OR CYCLIC RADICALS 127. 4 COMPLEXONES CONTAINING VARIOUS FUNCTIONAL GROUPS CAPABLE OF COMPLEX FORMATION 137. 5 COMPLEXONES CONTAINING HIGHLY CONJUGATE SYSTEMS OF DOUBLE BONDS 192. 6 POLYCOMPLEXONES 238. PART III. PRODUCTION OF COMPLEXONES AND THEIR COMPLEXES WITH METALS 259. CHAPTER 1 FUNDAMENTAL PRINCIPLES IN PRODUCTION OF COMPLEXONES 259. 2 METHODS FOR PRODUCTION OF SOLID CHELATES 277. PART IV. USE OF COMPLEXONES AND THEIR COMPLEXES 292. CHAPTER 1 CHEMICAL ANALYSIS 293. 2 SEPARATION OF RARE EARTH ELEMENTS 335. 3 THERMAL POWER ENGINEERING 349. 4 AGRICULTURE 360. APPENDIX 369. SUBJECT INDEX 412. THE MONOGRAPH DEALS WITH THE THEORY OF ACTION OF COMPLEXONES, THEIR SYNTHESIS AND APPLICATION. THE BOOK WAS WRITTEN FOR EMPLOYEES OF SCIENTIFIC RESEARCH ENTERPRISES, COLLEGE PROFESSORS AND STUDENTS SPECIALIZING IN THE FIELD OF ANALYTICAL AND PHYSICAL CHEMISTRY.

UNCLASSIFIED

USSR

UDC [661.7:547.297.2]+661.718.1

KOLPAKOVA, L. O., KABACHNIK, M. I., MEDVED', T. YA., LASTOVSKIY, R. P.,
KRINITSKAYA, L. V., URINOVICH, YE. M., and SMIRNOVA, V. A.

"Simultaneous Production of Acetyl Chloride and Hydroxyethylenediphosphonic Acid"

Moscow, Khimicheskaya Promyshlennost', No 8, 1972, pp 576-578

Abstract: Results are reported of the study of optimal reaction conditions for the simultaneous production of acetyl chloride and hydroxyethylenediphosphonic acid (HEDPA). The yield of HEDPA reached 84% when phosphorus trichloride was reacted with a mixture of acetic acid and acetic anhydride. The structure of HEDPA was proven by parallel synthesis from acetyl phosphonic acid diethyl ester and diethyl phosphite. Further proof was obtained by infrared spectroscopic analysis and potentiometric titration.

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UDC 621.32:535.23

DANIEL', Ye. V., KOLPAKOVA, I. V.

"Absolute Measurements of Energy Radiated by IPKSh-580/20 Lamp in 430-920 mμ Spectral Area"

Minsk, Zhurnal Prikladnoy Spektroskopii, No 4, Apr 71, pp 610-613.

Abstract: Results are presented from absolute measurements of the radiation energy of the IPKSh-580/20 lamp (similar to the IFP-20,000) in the 430-920 mμ spectral interval, approximately corresponding to the absorption band of glass activated with Nd³⁺. The photoelectric recording method was performed, allowing time scanning to be used to determine the instantaneous power values. The data indicated that the efficiency of conversion of electric energy stored in the condensers which powered the lamp to light flux is 43%. Measurement errors were 25%.

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UDC 629.78.017.2

KOLPAKOVA, N. P., SALIKOV, L. M., and YAGODIN, V. M.

"Investigation of the Parametric Invariancy of up to 8 Pulsed Systems of Automatic Control"

Tr. Mosk. Aviats. In-ta (Works of the Moscow Aviation Institute), No 240, 1972, pp 134-139 (from Referativnyy Zhurnal--Raketostroyeniye, No 5, May 73, Abstract No 5.41.142 by the authors)

Abstract: Pulsed systems of automatic control (ISAC) are being more widely used in different fields of engineering. Parameters of the control object and system of control, owing to structural, technological and other conditions, may deviate from calculated values which leads to a change in the dynamic properties of the system. The problem of parametric invariancy is involved in the independence of the motion of ISAC and their dynamic properties to variations of control object and control system parameters. The theory of invariancy in linear systems was developed in the works of B. N. Petrov, G. V. SHIPANOV, and N. N. IJZIN. An algorithm is proposed in this work for plotting the region of parametric invariancy in the amplitude of the parameters of pulse-width modulation modulators of ISAC. 9 figures, 3 bibliographic references.

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USSR

UDC: 629.78.062.2

PETROV, B. N., KOLPAKOVA, N. P., VASIL'YEV, V. A., PAVLENKO, A. I.

"Some Problems in Synthesis of Designs for Systems of Automatic Control of Three-Dimensional Motion of an Orbital Aircraft in the Earth's Atmosphere"

Moscow, Upr. dvizhushchimisya ob'yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth All-Union Conference on Automatic Control. Tbilisi, 1968--collection of papers), 1972, pp 224-242 (from RZh-Raketostroyeniye, No 10, Oct 72, abstract No 10.41.160)

Translation: Flight conditions of an orbital aircraft at hypersonic speeds require accounting for the mutual influence of longitudinal and lateral motion even at comparatively low angles of attack and glids. In this connection it is of interest to investigate a set of designs of control systems for orbital aircraft in the class of related multichannel systems ensuring independence or slight dependence of control channels or groups of channels. The paper formulates the problem of deriving an entire set of designs and selecting the best automatic control system both in the sense of process quality and simplicity of realization. Graphs without loops are taken as

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PETROV, B. N. et al., Upr. dvizhushchimisya ob'yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik, 1972, pp 224-242

the basis for design representation of orbital aircraft control systems, which to a considerable extent facilitates the investigation of internal connections of the coordinates in the object, enables selection of control elements from the condition of their maximum effectiveness in the control process, and also enables determination of a set of designs of selectively invariant systems. This simplifies approach to analysis of the system as a whole. Nine illustrations bibliography of five titles. Résumé.

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UDC 621.374.4:621.382.233.014.2

KOLPAKOVA, T. I.

"Investigating Tunnel Diode Frequency Multipliers"

Moscow, Radiotekhnika, Vol 25, No 9, 1970, pp 39-47

Abstract: Several circuits for frequency doublers and triplers using tunnel diodes are considered in this article. Where earlier researchers have used the method of small parameters in their analysis, the author of the present article uses the equivalent circuit method. The analysis begins in such fashion as to be suitable for any type of function which approximates the volt-ampere characteristic of the tunnel diode. It is particularly applicable to one type of volt-ampere characteristic approximation for the case of a frequency doubler. In making the analysis, the author assumes that the voltage applied to the tunnel diode is

$$U = E + U_1(\cos \omega_0 t + \psi_1) + U_n \cos(n\omega_0 t + \psi_n)$$

where U_1 , U_n , ψ_1 , and ψ_n are the amplitudes and phases for the first and nth harmonics, and E is the tunnel diode bias voltage. Since the current through the diode is a function only of the voltage across it, the method

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KOLPAKOVA, T. I., Radiotekhnika, Vol 25, No 9, 1970, pp 39-47

used for computing the nth harmonic of the current was that proposed by S. I. Yevtyanov in the book Approksimatsiya nelineynykh kharakteristik i spektry pri garmonicheskom vozdeystvii (Approximating Nonlinear Characteristics and Spectra in Harmonic Activity), published by "Sovetskoye Radio," he co-authored with A. N. Bruyevich. Experiments performed with a circuit whose diagram is reproduced showed that it can produce a second harmonic with a voltage amplitude two or three times that of the first. In conclusion, the author thanks V. A. Malyshev for his assistance.

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Composite Materials

USSR

UDC 669.715

KOLPASHNIKOV, A. I., MANUYLOV, V. F., TRUTNEV, V. V., DUNAYEV, A. A. and SHIRYAYEV, YE. V.

"Reinforced Material Based on Aluminum and Weldable Aluminum Alloys"

Moscow, Tsvetnyye metally, No 2, Feb 72, pp 56-57

Abstract: This study concerns the mechanical properties of composites, the structure of transition zones, and the metal flow in rolling prefabricated blanks designed for service under high work loads in assemblies and structures. Composite sheet metal blanks based on AMg6 alloy reinforced with Kh18N9T and EP322 steel wire fibers show a tensile strength of 53.6 and 69.2 kg/mm² and a bend angle of 55.7 and 36.5° at a specific weight of 3.46 g/cm³. Reinforcement with EP322 steel fibers produces composites with a strength exceeding that of Kh18N9T steel-wire reinforced composites by 29.1%. The amount of wire reinforcement is 15% in both materials. Tables in the original article show the relationship between the percentage of fibers and the strength of the composite material. (3 illustrations, 4 tables, 3 bibliographic references).

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USSR

UDC 577.3+612.816

SMIRNOV, A. V., BURLAKOVA, Ye. V., KOL'S, O. R., SVERDLOVA, Ye. A., and
FEDOROV, G. Ye., Moscow State University

"Changes in Nerve Fiber Mitochondria of the Crab During Conduction Blocked by
Different Agents"

Moscow, Doklady Akademii Nauk SSSR, No 1, 1972, pp 214-125

Abstract: Isolated nerve from an extremity of the green crab *Carcinus maenas* was stimulated after the conduction of excitation was blocked by (a) a constant current (2 to 3 v), (b) elevation of temperature to 37 to 40°C, (c) 10^{-3} M dinitrophenol solution. Examination of mitochondria from the control (resting) nerve showed them to be elongated with distinct external and internal membranes. The cristae were close together. The same picture was observed after 5 minutes of electrical stimulation of the nerve except that the cristae were somewhat farther apart. However, stimulation of the nerve after conduction was blocked by high temperature or by treatment with dinitrophenol caused the mitochondria to swell and become rounded. The cristae shortened considerably and in places became fragmented. In some cases the changes were so pronounced that the mitochondria resembled vacuoles.

1/1

USSR

UDC 621.376.029.4:.621.38

VOLKOV, YU. P., KALINCHUK, B. A., KOLTIK, YE. D., PICHUGIN, O. A., and
PIASTRO, V. P.

"Optoelectronic Modulators for the Measurement of Small Signals of Infrasonic
Frequencies"

Moscow, Izmeritel'naya Tekhnika, No 8, Aug 73, pp 52-54

Abstract: Optoelectronic modulators are described, and the specifications
and performance of various types of optoelectronic modulators are presented.
It is shown that in comparison to optoelectronic modulators constructed on the
basis of gas-discharge tubes, optron-based optoelectronic modulators have a
lower excitation power, simpler electrostatic screening, and possess higher
reliability. 2 figures. 1 table. 4 references.

1/1

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USSR

UDC: 621.317;621.373.029.42

KOLTIK, Ye. D., SVERDLICHENKO, G. D., YARALCSHVILI, R. V.

"A Random Signal Generator"

Tr. metrol. in-tov SSSR (Works of Metrology Institutes of the USSR), 1970, vyp. 117 (177), pp 109-117 (from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A391)

Translation: The authors describe the functional circuit of a generator of random signals in the 0.01-30 Hz range with a shaper for the form of the correlation function $R(\tau)$. Random signals in the above mentioned frequency range are produced by the method of converting noise to a generalized telegraph signal with subsequent filtration by low-frequency filters. These filters double as the correlation function shaper. The maximum error in shaping $R(\tau)$ is calculated. Four illustrations, bibliography of nine titles. Resumé.

USSR

UDC: 621.317.681.325.07(088.8)

KOLTIK, Ye. D., KOROVKIN, Ye. I., PIASTRO, V. P., KHANTEL', A. D.

"A Device for Measuring Correlation Functions of Random Processes"

USSR Author's Certificate No 266378, filed 23 Apr 68, published 22 Jul 70
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2A317 P)

Translation: The authors note the comparatively low accuracy of conventional devices of the multiplication type which contain analog-digital converters, multipliers, an integrator and a registration unit. In order to improve accuracy, a device is proposed which is distinguished by the fact that decoders are connected at the output of each analog-digital converter, and a sampling module is connected between the outputs of both decoders and the input of the switching circuit. E. L.

1/1

USSR

UDC 681.325.36

K
KOLTIK, YE. D., YAFALOSHVILI, R. V.

"A Device for Checking Subsonic Correlators"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 23, Author's Certificate No 276531, Filed 12 Jul 68, pp 141-142

Abstract: This author's certificate introduces a device for checking subsonic correlators. The device contains a motor, a high-frequency optico mechanical converter, a speed reducer, two low-frequency optico mechanical converters, amplifiers, and a pulse shaper. As a distinguishing feature of the patent, measurement precision during checking is improved by adding a coincidence circuit and a zero delay indicator to the device. One input of the coincidence circuit is connected through the pulse shaper to the output of one of the amplifiers, while the second input of the coincidence circuit is connected to the output of the high-frequency optico mechanical converter. The output of the coincidence circuit is connected to the input of the zero delay indicator.

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USSR

UDC 621.317.772

KRAVCHENKO, S. A., KOLTIK, YE. D., All-Union Scientific Research Institute of Metrology imeni D. I. Mendeleev

"A Precision Phasing Device for Ultralow and Low Frequencies"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 6, 1970, p 60, patent No 262264, filed 25 Dec 64

Abstract: This Author's Certificate introduces a precision phasing device for ultralow and low frequencies. The unit contains a master oscillator which feeds constant and variable phase channels. These channels are made up of series-connected frequency dividers and attenuators. The installation also contains a phase shifter connected across the input of the frequency divider in the variable phase channel, and a phase indicator which fixes the zero displacement between the output voltages of the channels. As a distinguishing feature of the device, the accuracy of predetermined phase shifts is improved by connecting a phase measurement circuit made up of two mixers operating on a coherent frequency in parallel with the phase shifter. The first inputs of these mixers are connected to the phase shifter, the second inputs are common, and the outputs are loaded by the phase meter. Mixers are connected in the variable and constant phase channels between the frequency dividers and attenuators. The first inputs of these

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USSR

KRAVCHENKO, S. A., KOLTIK, YE. D., Otkrytiya, Izobreteniya, Promyshlennyye
Obraztsy, Tovarnyye Znaki, No 6, 1970, p 60, patent No 262264, filed 25 Dec 64

mixers are connected to the frequency dividers, and the second inputs are common. Connected between the output of the master oscillator and the input of the channels is a frequency box which sets the coherent grid of frequencies introduced into the common inputs of the channels mixers, and the fixed frequency fed to the common inputs of the mixers in the phase measurement circuit.

2/2

USSR

UDC 533.601.155

BOGATKO, V.I., KOLTON, G.A.

"Three-Dimensional Unsteady Motion of a Gas Behind the Front of a Strong Shock Wave"

Leningrad, Vestnik Leningradskogo Universiteta, No 1, 1971, pp 78-85

Abstract: The known boundary-layer method, applied in previously published sources for the solution of unsteady unidimensional problems of gas dynamics, which is extensively used for solving steady problems of the flow of a hypersonic stream of gas about solids, is generalized in the present paper for three-dimensional unsteady problems. An investigation is made of the structure of an unsteady three-dimensional limiting gas flow. The motion of a wedge and a cone with a high variable speed is considered as an example. 2 figures, 5 bibliographic entries.

1/1

- 3 -

USSR

UDC 533.601.155

GRIB, A.A., KOLTON, G.A., KUPCHINENKO, M.B.

"Hypersonic Gas Flow Past a Developing Surface"

Leningrad, Vestnik Leningradskogo Universiteta, No 1, 1971, pp 102-108

Abstract: A system of ordinary Vallander-Nikol'skiy differential equations for flows on a developing surface is reduced to a system of integral equations used for application of the iteration method for M_0 $M_0 \rightarrow 1$. Taken as the zero approximation is the limiting case of rarefaction flow. The practical convergence of the iteration method is shown in some particular examples. 2 figures, 4 bibliographic entries.

1/1

- 5 -

USSR

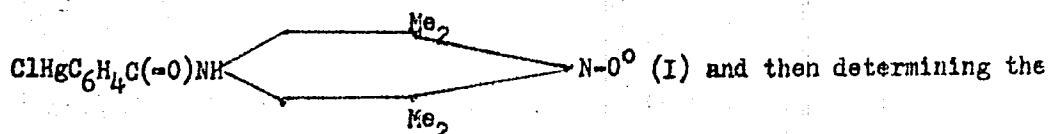
UDC 576.852.15.094.81.088.8

POZHARITSKAYA, L. M., KOL'TOVER, V. K., AGRE, N. S., and KALAKUTSKIY, L. V.,
Institute of Microbiology and Institute of Chemical Physics, Academy of
Sciences USSR

"Activation of Spores of *Thermoactinomyces vulgaris* 2681 as Indicated by
the Spin Tracer Method"

Moscow, *Mikrobiologiya*, Vol 40, No 6, Nov/Dec 71, pp 1110-1111

Abstract: Activation of spores of the actinomycete *Thermoactinomyces vulgaris* 2681, just like that of bacterial spores, is accompanied by the conversion of disulfide groups into thiol groups. In experiments on a suspension of nonactivated spores of *T. vulgaris* 2681 in glycerol with 14% sprouting spores and one of activated spores of this actinomycete in water with 90% sprouting spores, the relationship between activation and the formation of thiol groups was demonstrated by reacting these groups with the stable iminoxyl radical



EPR spectrum of the radical. The methods of cultivation and preparation of the suspensions have been described. Radical I was introduced into the

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USSR

POZHARITSKAYA, L. M., et al., Mikrobiologiya, Vol 40, No 6, Nov/Dec 71,
pp 1110-1111

suspension of activated spores from a water-alcohol solution and into that of nonactivated spores from a solvent that inhibits activation (glycerol or octane). The EPR spectrum corresponding to the suspension of activated spores exhibited two signals, one with $\tau \sim 10^{-8}$ sec and another with

$\tau = 3 \times 10^{-9}$ sec, that was associated with radicals whose rotary motion was inhibited to a considerably lesser extent. Evidently two types of HS groups with different accessibility to radical I were present in the protein wall of the activated spores. The spectrum for the suspension of non-activated spores consisted of a triplet signal to which corresponded a rotary motion of I with $\tau = 2 \times 10^{-8}$ sec. The intensity of this signal was 5-7 times lower than that of the signal with the more inhibited rotation in the spectrum for the suspension of activated spores. This indicated that activation was accompanied by a considerable increase in the number of HS groups.

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Biochemistry

UDC 612.015.1:543.42

USSR

KOL'TOVER, V. K., RAYKMAN, L. M., YASAYTIS, A. A., and BLYUMENFEL'D, L. A.,
Institute of Chemical Physics, USSR Academy of Sciences, and Moscow State
University imeni M. V. Lomonosov

"ATP-Induced Conformation Changes in Mitochondrial Membranes Investigated by
the Method of Spin Probing"

Moscow, Doklady Akademii Nauk SSSR, Vol 197, No 1, 1971, pp 219-222

Abstract: It is generally believed that oxidative phosphorylation in mitochondria is accompanied by changes in the conformation of the corresponding enzyme systems. However, the occurrence of these changes has never been definitively proven. The object of this study was to detect -- by means of spin probing with neutral, nonpolar molecules -- conformation changes in mitochondrial membranes and submitochondrial particles during their activation with ATP. The study material was obtained from cattle hearts; the test substance, a radical, was of synthetic origin. The results of spectrographic analysis showed increased solubility of the radical after addition of ATP, which indicated conformation changes in membrane lipoproteins. Furthermore, a lowered pH produced similar spectral changes, suggesting that an increased concentra-

1/2

USSR

KOL'TOVER, V. K., et al, Doklady Akademii Nauk SSSR, Vol 197, No 1, 1971,
pp 219-222

tion of protons can induce conformation changes in which the number of nonpolar groups on the "exposed" portion of the mitochondrial lipoproteins increases.

2/2

UDC: 621.317.33

USSR

KOL'TSOV, A. A. and TYUKAVIN, A. A.

"Synthesis of Frequency-Independent Measurement T- and 2T-Structure Circuits"

V sb. Novyye izmerit.-inform. ustroystva dlya nefi. prom-sti. Ch.2 (New Measurement-Information Devices for the Petroleum Industry -- collection of works. Pt.2), Ufa, 1972, pp 32-49 (from RZh-32.Metrologiya i Izmeritel'naya Tekhnika, No 5, 1973, Abstract No 5.32.108³)

Translation: On the basis of the conversion factor method, the authors study the synthesis of frequency-independent, matching T and 2T type structure circuits with positive T and 2T bridge properties. The circuits are designated for the measurement of 2- and 3-component complex resistances and conductivities. A condition is formulated for the frequency independence of balancing circuits. A subdivision is made of the conversion factor of measurement converters converting voltage into current. The measurement converters are used for the synthesis of circuits into subtypes according to algebraic designation. The problem of synthesizing possible circuits is solved with the aid of the subtypes. Characteristic values are derived in the conversion factor

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USSR

KOL'TSOV, A. A. and TRUKAVIN, A. A., Novyye izmerit.-inform. ustroystva dlya
neft. prom-sti. Ch.2, 1972, pp 32-49

of some measurement converters. The conditions for separate counts and
separate balancing are obtained on their basis. Optimal circuits are derived.
Methods are developed for the separate balancing of circuits used in measuring
two and also three parameters. Original article: three illustrations, five
tables, and ten bibliographic entries.

2/2

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USSR

UDC: 621.372.62.01

KOL'TSOV, A. A., SAPEL'NIKOV, V. M.

"Structures of Phase Shifters"

V sb. Elektroizmerit. tsepi i ustroystva kontrolya i avtomatiz. nef't. prom-sti (Electric Measuring Circuits and Devices for Inspection and Automation in the Petroleum Industry--collection of works), Ufa, 1970, pp 156-165 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A116)

Translation: The authors describe multipoles which provide continuous or discrete regulation of the phase shift between given currents or voltages of input and output circuits. Consideration is given to an L-shaped voltage divider which is taken as the fundamental circuit. The properties of parallel, cascade and series connected dividers are discussed. Dividers are described in which the outputs are connected in parallel and regulation is present. Bibliography of 21 titles. L. Ya.

1/1

- 29 -

USSR

UDC: 621.372.62.01

KOL'TSOV, A. A., SAPEL'NIKOV, V. M.

"Structures of Phase Shifters"

V sb. Elektroizmerit. tsepi i ustroystva kontrolya i avtomatiz. nef't. prom-sti (Electric Measuring Circuits and Devices for Inspection and Automation in the Petroleum Industry--collection of works), Ufa, 1970, pp 156-165 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A116)

Translation: The authors describe multipoles which provide continuous or discrete regulation of the phase shift between given currents or voltages of input and output circuits. Consideration is given to an L-shaped voltage divider which is taken as the fundamental circuit. The properties of parallel, cascade and series connected dividers are discussed. Dividers are described in which the outputs are connected in parallel and regulation is present. Bibliography of 21 titles. L. Ya.

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- 29 -

AA0051768

KOLTSON A.A.
UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

237018 REMOTE SUB-SURFACE PIEZOGRAPH, for use in well-logging and especially for determining the level of liquid in an oilwell, consists of a vertical torpedo-shaped container, to which power supply and signalling cables as well as the raising/lowering cable, can be fixed and which incorporates an internal float which has a horizontal aperture through it. One side of the container contains a source of light (4) connected electrically as the circuit diagram shows. This light is free to shine through the horizontal aperture so that it falls on either of 2 light-sensitive elements (6 and 7) connected to the same circuit via the diodes of opposite polarity (5). The remainder of the circuit consists of the transformer (10) filter (11), amplifier (12), reversing motor (13) and indicating and recording device (14). As the container is lowered gradually into the well, the level of

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AA0051768

liquid firstly corresponds with the position indicated by element (7) and then the level reaches element (6). Then both elements go dark because the light has been cut off. By knowing the length of the cable the depth of the level of liquid down the well can be determined, by the signals which return up the cable.

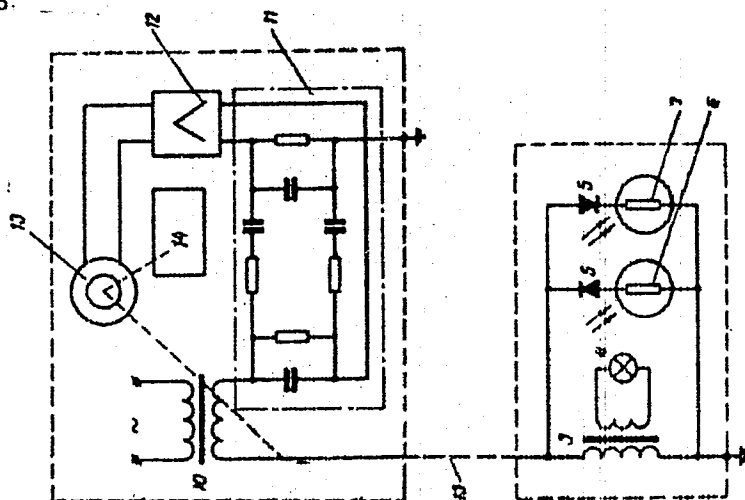
27.3.67 as 1143915/18-10. A.A.KOL'TSOV & OTHERS.
(16.6.69) Bul 7/3.2.69. Class 74b, 5a. Int.Cl.G 08c,
E 21b.

AUTHORS: Kol'tsov, A. A.; Grib, V. S.; Veshchev, O. N.

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19820116

AA0051768.



3/3

19820117

USSR

UDC 621.376.234

KIREYEV, P.S., KHOLOPKIN, A.I., KOL'TSOV, G.I., YUKHTANOV, YR.D.

"On The Nature Of The Quick Action Of Cadmium Telluride Detectors"

Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 604-608

Abstract: The cadmium telluride p-n junction detectors used in this study had a working area of 0.1 cm^2 , a thickness of 200 micrometer, a capacitance measured at 600 kHz of 5 pf with a back bias of 220 v, and a back current with this voltage of 0.1 microamp. The thickness of the region of the space charge, assessed from the voltfarad characteristic, had a magnitude of approximately 10 micrometer. The output signal was taken from a load resistance of 75 ohm, and the time constant of the circuit did not exceed 0.6 nanosec. With the use of an amplifier, the time constant increased to 4.6 nanosec. The complex structure of the output signal is interpreted as the result of a collection of charges from the space charge region, giving a current pulse with a duration of approximately 10 nanosec, and from the base with a pulse duration of 150-100 nanosec. The drift collection of charges from the base is assured as a result of redistribution of the field with a sufficiently high level of generation of the charge carriers. 2 fig. 9 ref. Received by editors, 4 Dec 1970.

1/1

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Instruments and Measurements

USSR

UDC: 621.382.001.5:621.376

KHOLOPKIN, A. I., KOL'TSOV, G. I., KIREYEV, P. S.

"Pulse Characteristic of a Detector With a PIN Silicon Structure"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 1, Jan 72, pp 132-137

Abstract: The authors calculate the pulse characteristic of a silicon structure with PIN structure uniformly excited with respect to volume. The detector is made by a method briefly described by P. S. Kireyev and others in *Pribory i Tekhnika eksperimenta*, 1968, No 5, p 63. A pulse x-ray tube was used as the source of emission, giving an x-ray pulse with an average energy of the quanta of about 60 keV and a duration of several nanoseconds. This enables comparison of the theoretical and experimental pulse characteristic. The results of the study show that silicon detectors with PIN structure can be successfully used to register x-ray pulses in the nanosecond range. Utilization of a simple model of the process of collection of charge carriers enables investigation of the pulse shape and the processes determining it. Fig. 4, bibl. 6.
1/1

Optical

USSR

UDC: 539.1.073.3

ALEKSAKOV, G. N., KOL'TSOV, I. M., MAMAYEV, V. L., ROZOV, E. S., Moscow
"Order of the Red Banner of Labor" Engineering Physics Institute

"A Precision Deflecting Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratzy, Tovarnyye Znaki,
No 2, Jan 72, Author's Certificate No 324600, Division G, filed 3 Dec 70,
published 23 Dec 71, p 148

Translation: This Author's Certificate introduces a deflecting device for coding graphic information which contains a scanning mirror with electromagnetic drive, and an interferometer device for measuring displacements of the scanning beam. As a distinguishing feature of the patent, construction is simplified, the overall dimensions of the device are reduced, and accuracy is improved by fastening the scanning mirror on a point support and making the optical reflectors of the interferometers in the form of triple prisms located on the mounting of the scanning mirror, while the current coils of the drive are made in the form of two mutually perpendicular semicircles fastened to the mirror mounting and

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USSR

ALEKSAKOV, G. N. et al., Soviet Patent No 324600

located in the gap of a permanent magnet whose pole pieces are concentric spheres.

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USSR

UDC 632.95

KRUTITSKAYA, M. N., KOL'TSOV, N. S., TRIKHANOV, M. D., SHOGAM, S. M.,
DAVYDOVA, A. N., YEGOROVA, I. L., and KUZOVLEVA, M. V.

"Method of Preparing Calcium Tetrathionate"

USSR Authors' Certificate No 264363, filed 27 Dec 68, published 4 Jun 70
(from RZh-Khimiya, No 1, 10 Jan 71, Abstract No 1N588P)

Translation: CaS_4O_6 (I) is obtained in an $\text{H}_2\text{S}_4\text{O}_6$ medium by the oxidation of calcium thiosulfate (II) with perhydrol, taken in 10% excess, at 10-12°. 52 g II are added in the course of 1 hr to a 13.5 ml, 27% solution of H_2O_2 , cooled to 10°, to which 96 ml $\text{H}_2\text{S}_4\text{O}_6$ (concentration 235 g/l) was added beforehand. The resultant suspension is filtered out from traces of sulfate; the filtrate is evaporated in vacuum, and the residue crystallized. 23 g of 98% dihydrate of I is obtained. The mother liquor remaining after crystallization is used to prepare $\text{H}_2\text{S}_4\text{O}_6$.

1/1

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1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CALCIUM TETRATHIONATE PREPARATION -U-
AUTHOR--(05)-KRUTITSKAYA, M.N., KOLTISOV, N.S., TRIKHANOV, M.D., SHOGAM,
S.M., DAVYDOVA, A.N.
COUNTRY OF INFO--USSR
SOURCE--USSR 264,363
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATZSY, TOVARNYE ZNAKI 1970, 47(9)
DATE PUBLISHED--03MAR70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHEMICAL SYNTHESIS, CALCIUM COMPOUND, THIOSULFATE, CHEMICAL
PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3003/1779 STEP NO--UR/04B2/70/000/000/0000/0000
CIRC ACCESSION NO--AA0130612
UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AAD130612
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CA TETRATHIONATE IS PREPD. BY
OXIDIZING CA THIOSULFATE WITH PERHYDROL IN TETRATHIONIC ACID.

UNCLASSIFIED

USSR

UDC 537.533.3+537.534.3:621.38.032.269

KOL'TSOV, O. A., GUBIN, S. F.

"An Analyzer of Electron Beam Structure"

V sb. Progressivn. tekhnol. i novoye oborud. dlya proiz-va elektron. priborov
(Progressive Technology and New Equipment for the Electronics Instrument Industry -- Collection of Works), Saratov, 1970, pp 59-62 (from RZh-Fizika, No 12(I), Dec 70, Abstract No 12Zh687)

Translation: An analyzer is developed which can measure the distribution of current density and the transverse components of electron velocities in beams of diameter 20 mm and of length up to 50 mm in continuous (accelerating voltage $U \leq 1.5$ kv) and pulsed ($U \leq 15$ kv) modes. A. Zh.

1/1

USSR

KOL'TSOV, V. I., KHACHATUROV, A. A., YAKOVLEV, Ye. I.

"Properties of Continuity of a Sampling Correlation Function and Errors in its Definition"

Tr. Mosk. Avtomob.-Dor. In-ta [Works of Moscow Institute of Motor Vehicles and Highways], 1972, No 41, pp 55-60 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V242, by V. Yurinskiy).

Translation: For large T, approximate formulas are produced for the dispersions

$$\bar{k}(\tau) = \frac{1}{T} \int_0^T x(t)x(t+\tau) dt$$

and the first and second differences \bar{k} . Process $x(t)$ is a Gaussian stable process.

1/1

1/2 015 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--NEW METHOD OF TESTING HIDE AND FUR MATERIAL FOR ANTHRAX -U-
AUTHOR--KELISEV, V.I.
COUNTRY OF INFO--LSSR
SOURCE--VETERINARIYA, 1970, NR 5, PP 108-109
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTHRAX, PRECIPITATION TEST
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO--FD70/605049/E01 STEP NO--UR/0345/70/C00/C05/0108/0109
CIRC ACCESSION NO--AP0143381
UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0143381

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN IMPROVED METHOD OF CONDUCTING THE PRECIPITATION TEST FOR DETECTION OF ANTHRAX IN SALT PRESERVED HIDE AND FUR SAMPLES HAS BEEN DEVELOPED. THE METHOD WAS 100PERCENT EFFECTIVE IN TRIALS OF 51 HIDE SAMPLES FROM ANTHRAX INFECTED ANIMALS, AS COMPARED WITH 22 POSITIVES OUT OF 51 ACCORDING TO THE OLD METHOD. BUNDLES OF SALT PRESERVED HIDES ARE STERILIZED, COOLED AND DRIED. SAMPLES ARE THEN WASHED IN TAP WATER FOR 25-30 SEC, DRIED, PULVERIZED AND EXTRACTED WITH DISTILLED WATER AND 0.3PERCENT CARBOLIC ACID FOR 18-20 HRS. THE EXTRACT IS FILTERED AND ADDED TO SALTED (2-3PERCENT) SERUM. THE REACTION CAN BE READ IN 50-60 MIN. IT IS IMPORTANT NOT TO WASH HIDE SAMPLES IMMEDIATELY AFTER STERILIZING NOR IN HOT WATER, AS THIS WILL WASH OFF THE PRECIPITATING AGENT. FACILITY: MOSKOVSKAYA GORODSKAYA VETERINARNAYA LABORATORIYA, MOSCOW MUNICIPAL VETERINARY LABORATORY.

UNCLASSIFIED

USSR

UDC 669.715'721:620.186:669.018.8:669.018.8

KOL'TSOV, V. M., KISHMERESHKIN, I. G., GERSHTEYN, V. D., UST'YANTSEV, V. U.,
and PAVLENKO, Z. A.

"Influence of Certain Technological Factors on the Structure and Properties
of AMg6 Alloy Sheet"

Tekhnol. legkikh splavov. Nauchno-tekhn. byul. VILSa (Technology of Light
Alloys. Scientific and Technical Bulletin of the All-Union Institute of
Light Alloys), 1970, No 3, pp 20-23 (from RZh-Metallurgiya, No 12, Dec 70,
Abstract No 12 1752 by I. NABATOVA)

Translation: An investigation was made of the structure, mechanical properties,
and corrosion resistance of cold-rolled, 1-, 2- and 4-mm-thick AMg6 alloy sheet
as a function of variations in chemical composition, degree of deformation
(5-50%), and annealing regime in a range of 230-500°. Sheet properties were
not significantly affected by variation in chemical composition (within the
limits of the All-Union State Standard) or in heating rate (50, 100, and
> 1000 deg/hr) or in cooling rate (25, 50 deg/hr and air cooling). The max-
imum value of $\sigma_{0.2}$, viz., 20.5 kg/mm², was obtained with a deformation degree
of 30% and an annealing temperature of 280°. Heating at 100° for 100 hours
in the event of prior annealing at temperatures > 300° causes the evolution
1/2

USSR

KOL'TSOV, V. M., et al, Tekhnol. legkikh splavov. Nauchno-tekhn. byul, VILSa (Technology of Light Alloys. Scientific and Technical Bulletin of the All-Union Institute of Light Alloys), 1970, No 3, pp 20-23 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 1752 by I. NABATOVA)

of particles of the Al-Mg phase over the grain boundaries and a lessening of corrosion resistance of the sheet. The combination of high corrosion resistance and satisfactory mechanical properties of the sheet is assured at an annealing temperature of 280-300°. Five illustrations. One table.

2/2

KOLTISOV V.V.

Acc. Nr.:

AT0045335

Ref. Code: UR0030

JPRS 50052

Visual and Instrumental Observations of Twilight Aureole

(Abstract: "Some Results of Visual Observations and Spectrophotometric Measurements of the Twilight Aureole of the Earth's Atmosphere from the 'Soyuz-5' Spaceship," by K. Ya. Kondrat'yev, Corresponding Member, Academy of Sciences USSR, B. V. Volynov, A. P. Gal'tsev, V. V. Kol'tsov, O. I. Smoktiy and Ye. V. Khrunov; Moscow, Doklady Akademii Nauk SSSR, Vol. 190, No. 2, 1970, pp. 327-330)

The program for "Soyuz-5" included an optical experiment in space for studying the spectral (color), angular and spatial evolution of the brightness picture of the twilight atmosphere. This program included simultaneous photographic and spectrophotometric studies of the twilight aureole of the earth's atmosphere in the wavelength range 400-650 m μ , accompanied by visual observations. The program for working with the manual spectrograph provided for a survey of the twilight aureole of the earth's atmosphere in the direction of the sun from the time of appearance of the aureole until the total emergence of the spaceship on the illuminated side of the earth. The twilight aureole was also photographed on black-and-white and color film. Visual observations included an evalua-

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tion of the vertical evolution of brightness and color of the twilight aureole as the sun emerged from below the horizon. Some of the results can be summarized as follows. Near the earth's surface the principal contribution to brightness of the twilight aureole is from long-wave radiation. With an increase in the altitude of the sighted layer atmospheric density decreases and the brightness of the twilight aureole is at a wavelength of $N480 \text{ m}\mu$. A brightness minimum is observed at a wavelength of $N600 \text{ m}\mu$, caused by ozone absorption in the Chappuis band. The depth of this minimum is dependent on the altitude of the particular layer of the atmosphere above the earth's surface. Spectral brightness is greatly dependent on the azimuth of the direction of sighting and the angle of solar depression, sharply increasing with a decrease of the latter. The altitude corresponding to the spectral brightness maximum is also dependent on the angle of solar depression and wavelength, decreasing with an increase of the latter.

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UDC 621.371.1:550.388.2

KOLTSOV, V. V., KUZMIN, E. L.

"Qualitative Interpretation of the Data from Reflected-Oblique Probing of the Ionosphere"

Materialy nauchnotekhn. konferentsii. Leningr. elektrotekhn. in-t svyazi. vyp. 3 (Materials of the Scientific and Technical Conference. Leningrad Electrotechnical Communications Institute, vyp. 3), Leningrad, 1970, pp 261-265 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A283)

Translation: This article contains an investigation of experimental results with respect to reflected-oblique probing of the ionosphere with short pulses. Approximate estimates of the critical frequencies and active altitudes corresponding to the leading edge of each maximum scattered signal are presented.

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Acc. Nr:

AP0034221

Abstracting Service:

CHEMICAL ABST.

4-70

Ref. Code:

UR 0078

71215w Mechanism of cadmium iodide extraction by tri-
butyl phosphate. Kol'tsov, Yu. I.; Kuz'min, N. M.; Zhurav-
lev, G. I. (USSR). Zh. Neorg. Khim. 1970, 15(1), 179-81
(Russ). Extn. of CdI_2 by Bu_3PO_4 from satd. aq. solns. of Cd,
in the presence or without HI, was studied by ir spectroscopy.
 $Bu_3PO_4 \cdot CdI_2$ is extd. as solvate. The ir spectra indicate that
extd. species are $3Bu_3PO_4 \cdot Cd(CdI_4) \cdot H_2O$ or $3Bu_3PO_4 \cdot 2CdI_2 \cdot H_2O$,
 $2Bu_3PO_4 \cdot CdI_2$, and $Bu_3PO_4 \cdot H_2O \cdot CdI_2$. Charged species form in
the presence of HI. Here, the equil. shifts toward formation of
 CdI_{4-x}^{x-} , where $x = 0, 1, 2, 3, 4$. HMJR

REEL/FRAME

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1/2 042 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THICKNESS MEASUREMENT OF SINGLE AND TWO LAYER DIELECTRIC COATING
BASED ON SI DIOXIDE AND NITRIDE BY I.R. SPECTROSCOPY -U-
AUTHOR-(03)-KOLTSOVA, N.G., KOLTSOV, YU.I., KOROBV, I.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKLAD. SPEKTROSK (USSR), VOL. 12, NO. 4, P. 752-4, APRIL
1970

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--NONDESTRUCTIVE TEST, DIELECTRIC COATING, THICKNESS GAGE,
SILICON DIOXIDE, SILICON NITRIDE, IR SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3006/1821

STEP NO--UR/0368/70/012/004/0752/0754

CIRC ACCESSION NO--AP0135386

UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD ENSURE NONDESTRUCTIVE TESTING OF DIELECTRIC FILMS, AND IS BASED ON THE APPLICATION OF LAMBERT BEER LAW. MAXIMUM ABSORPTION OF SiO_2 COATING CORRESPONDS TO 1080 CM NEGATIVE PRIME_1 , WHILE FOR $\text{Si SUB}_3 \text{ N SUB}_4$ IT IS 850 CM NEGATIVE PRIME_1 . THE ABOVE ARE DUE TO ANTISYMMETRIC STRETCH VIBRATIONS OF Si-O-Si AND Si-N-Si GROUPS. THE EXPERIMENTAL RESULTS INDICATING THICKNESS, OPTICAL DENSITY AND ABSORPTION COEFFICIENT FOR THE TWO TYPES OF FILMS ARE TABULATED.

UNCLASSIFIED

USSR

UDC: 621.372.543(088.8)

VORONIN, O. V., KOL'TSOV, Yu. V.

"A Low-Frequency Filter"

USSR Author's Certificate No 264561, filed 26 Aug 68, published 22 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12D90 P)

Translation: This Author's Certificate introduces a transistorized low-frequency filter in a voltage amplifier circuit with negative feedback from the output to the input of the amplifier through a CCR T-bridge. To obtain a frequency response with a predetermined nonuniformity in the passband, and maximum slope of attenuation beyond the limits of the passband of the filter, two RRC and CCR T-bridges are connected ahead of the amplifier so that the inputs of the bridges are connected together and are the input of the filter; the output of the RRC bridge is connected to the input of the amplifier, and the output of the CCR bridge acts as the third element (capacitance) of the RRC bridge.

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1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ENZYMES OF THE AMYLOLYTIC COMPLEX OF ENDOMYCOPSIS STRAIN 20-9 -U-
AUTHOR--(02)-KOLTSOVA, E.V., SADOVA, A.I.
COUNTRY OF INFO--USSR *K*
SOURCE--PRIKL. BIOKHM. MIKROBIOL. 1970, 6(1), 48-50
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--MICROORGANISM, AMYLASE, BIOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0295 STEP NO--UR/0411/70/006/001/0048/0050
CIRC ACCESSION NO--AP0120984
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120984

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AMYLOLYTIC ENZYME COMPLEX
EXCRETED BY ENDOMYCOPSIS SPECIES STRAIN 20-9 WAS PPTD. WITH (NH SUB4)
SUB2 SO SUB4. AT 60 AND 90PERCENT SATN. PPTS. WERE OBTAINED CONTG.,
RESP., 54 AND 73PERCENT OF THE ALPHA AMYLASE, 64 AND 95PERCENT OF THE
GLUCOAMYLASE, AND 8 AND 28PERCENT OF THE MALTASE ACTIVITIES.
FACILITY: MOSCOW TECHNOL. INST. FOOD IND., MOSCOW, USSR.

UNCLASSIFIED

USSR

KOL'TSOVA, I. S.; MIKHAYLOV, I. G.; SABUROV, B.

"Propagation of Ultrasonic Waves in Organic Emulsions"

Leningrad, Vestnik Leningradskogo Universiteta: Fizika - Khimiya; January-March 1973, pp 52-7

Abstract: A pulse method was used in the study of ultrasonic wave absorption in organic emulsions in the 3-27-megacycle frequency range at temperatures of 5 to 20°C. In benzene emulsions with particles averaging 8 microns in size the main kinds of losses are those caused by heat exchange as well as those due to scattering depending on the voluminal and shear viscosities. For bromobenzene and nitrobenzene emulsions with particles averaging 4 microns in size the losses due to heat exchange and friction predominate over other kinds of losses. The difference in the main mechanisms of absorption in the emulsions is reflected in a variation of the supplementary absorption coefficient with frequency and does not affect the variation of the supplementary absorption coefficient with temperature. The results of the experiment are in good agreement with the theoretical data.

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USSR

UDC: 801:51

KOL'TSOVA, M. V.

"On the Problem of Statistical Methods of Attribution of Anonymous Texts"

V sb. Vychisl. metody i programir. (Computer Methods and Programming--
collection of works), vyp. 4, Saratov, Saratov University, 1970, pp
38-42 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V604)

Translation: Calculations are presented which confirm the hypothesis
that an anonymous story from the journal "Grazhdanin", No 2, 1874 was
written by F. M. Dostoyevskiy.

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1/2 042

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--THICKNESS MEASUREMENT OF SINGLE AND TWO LAYER DIELECTRIC COATING
BASED ON SI DIOXIDE AND NITRIDE BY I.R. SPECTROSCOPY -U-
AUTHOR--(03)-KOLTSOVA, N.G., KOLTSOV, YU.I., KOROBV, I.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKLAD. SPEKTROSK (USSR), VOL. 12, NO. 4, P. 752-4, APRIL
1970

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, METHODS AND EQUIPMENT, MATERIALS

TOPIC TAGS--NONDESTRUCTIVE TEST, DIELECTRIC COATING, THICKNESS GAGE,
SILICON DIOXIDE, SILICON NITRIDE, IR SPECTROSCOPY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3006/1821

STEP NO--UR/0368/70/012/004/0752/0754

CIRC ACCESSION NO--AP0135386

UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135386

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD ENSURE NONDESTRUCTIVE TESTING OF DIELECTRIC FILMS, AND IS BASED ON THE APPLICATION OF LAMBERT BEER LAW. MAXIMUM ABSORPTION OF SiO SUB2 COATING CORRESPONDS TO 1080 CM NEGATIVE PRIME1, WHILE FOR Si SUB3 N SUB4 IT IS 850 CM NEGATIVE PRIME1. THE ABOVE ARE DUE TO ANTISYMMETRIC STRETCH VIBRATIONS OF Si-O-Si AND Si-N-Si GROUPS. THE EXPERIMENTAL RESULTS INDICATING THICKNESS, OPTICAL DENSITY AND ABSORPTION COEFFICIENT FOR THE TWO TYPES OF FILMS ARE TABULATED.

UNCLASSIFIED

USSR

UDC 576.851.45.095

GURLEVA, G. G., DOMARADSKIY, I. V., KHALYAPINA, Ye. Ye., ALUTIN, I. M.,
TARANOVA, V. N., PUSHNITSA, N. P., KOL'TSOVA, Ye. G., MARCHENKOV, V. I.,
SHCHEGLAKOVA, N. M., and GRICOR'YAN, E. G., Rostov-on-Don Scientific Research
Antiplague Institute

"Biological Properties of Pasteurellae Isolated From Various Species of
Animals"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 11, 1971,
pp 54-58

Abstract: A comparative study was performed on *P. avicida*, *P. cuniculicida*,
B. avisepticus, *B. suis*, *B. bovis*, and *B. ovis* (a total
of 27 strains) isolated from chickens, pigs, suckling pigs, calves, steers,
sheep, house mice, and rabbits in various geographic areas in 1936-1967. The
tinctorial, cultural, morphological, and biochemical properties of these
strains as well as their sensitivity to antibiotics, nucleotide DNA compo-
sition, and virulence to albino mice, albino rats, and pigeons revealed that
they constitute a homogeneous group and belong to a single species -- *P.*
multocida. Significantly, all the strains investigated are sensitive to
colicines E+J, F, G, J+G, and S₅. If the findings are confirmed by supple-
mentary investigations, the colicin test may well be used for a differential
diagnosis of *P. multocida*.

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USSR

UDC 575.191.576.8

KOL'TSOVA, Ye. G., SUCHKOV, Yu. G., and LEBEDEVA, S. A., Rostov-na-Dona Anti-plague Institute

"Transfer of the Bacteriocinogenic Factor in Pasteurella pestis"

Moscow, Genetika, No 4, 1971, pp 118-122

Abstract: Crossing a pesticin producing donor having a drug resistance episome with non-pesticin producing recipients produced recombinants with the R factor. The frequency of transfer of the pesticinogenic factor (Pg) ranged from 10^{-2} to 10^{-6} . Determination of the pesticin producing capacity of antibiotic-resistant variants revealed the presence of recombinants which upon conjugation received not only the R episome but the Pg factor, as manifested by their ability to produce pesticin. Pesticin production did not disappear in the course of spontaneous or induced elimination of the R factor, an indication that these episomes are not linked in the recombinants. The markers of pesticin production and coagulase-fibrinolytic activity were transferred both together and separately. These markers are apparently controlled by different genes closely linked in the episome.

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UDO 621.383:621.382:535.376

KOLTUN, M.M.

"Low-Reflection And Reflective Coatings For Semiconductor Radiators And Radiation Receivers"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their Application--Collection Of Works), Issue 4, Moscow, "Sov.radio," 1972, pp 15-22 (from RZh:Elektronika i yeye primeneniye, No 9, Sept 1972, Abstract No 9B299)

Translation: Problems are discussed which are solved with the aid of optical coatings for semiconductor photoelectric devices, and the results are presented of the development of one- and multi-layer low-reflection and reflective coatings. The low-reflection coatings developed, which were deposited by the method of evaporation in a high vacuum with heating by an electron beam, made it possible to increase by 50--55 percent the efficiency of the photovoltaic element because of the decrease of reflection in the working region of the spectrum. With the aid of reflecting coatings deposited on the rear surface of the devices, it was possible to increase the reflection coefficient in the non-working region of the spectrum up to 97--99 percent. 3 ill. 1 tab. 10 ref.

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USSR

UDC 662.997:621.316.544.4

KOLTUN, M. M.

"Selective Surfaces and Coatings in Applied Solar Energy"

Tashkent, Geliotekhnika, No 5, 1971, pp 70-80

Abstract: A study was made of various coatings for solar batteries made of semiconductor photoconverters. Selective coatings for semiconductor photoconverters, thermal solar energy converters, and sun-irradiated radiator-coolers are discussed. Literature in the mentioned areas is analyzed. The theoretical principles of operation of selective surfaces have been developed, and selected coatings with optical properties have been created which are close to optimal for all types of helioengineering devices. The properties of these coatings are outlined, and the results of their practical application and experimental testing are discussed.

Future directions to be explored in the field of applied solar energy discussed in the reviewed literature include: 1) the creation of selected coatings for new types of solar energy converters such as cheap thin-film semiconductor photoconverters, 2) the creation of selective coatings on new physical principles, such as the development of semiconductor photoconverters having selective transmission in the infrared range of the solar spectrum,

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KOLTUN, M. M., Geliotekhnika, No 5, 1971, pp 70-80

3) the solution of theoretically new problems in the field of thermal regulation by means of selective coatings, for example, coatings the radiation characteristics of which vary as a function of the magnitude of the solar radiation flux or the surface temperature in the required direction, 4) finding simpler, efficient technological procedures for applying selective coatings, 5) comprehensive studies of spectral and integral properties and the stability of selective coatings under laboratory, atmospheric and space conditions, and the development of selective coatings resistant to unfavorable climatic factors, such as, for example, increased moisture, high temperatures, deep vacuum, in the presence of corpuscular radiation and under the effect of ultraviolet light.

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1/2 048 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--MULTILAYER BLACK MIRROR -U-
AUTHOR--KOLTUN, M.M.
COUNTRY OF INFO--USSR K
SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, FEB. 1970, P. 350-352
DATE PUBLISHED----FEB 70
SUBJECT AREAS--MATERIALS, PHYSICS
TOPIC TAGS--OPTIC PROPERTY, IR SPECTRUM, COPPER, ALUMINUM, METAL COATING,
SILICON DIOXIDE, ABSORPTION, UV RADIATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0912 STEP NO--UR/0368/70/012/000/0350/0352
CIRC ACCESSION NO--AP0107441
UNCLASSIFIED

2/2 048

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0107441

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DELINEATION OF REQUIREMENTS FOR SELECTIVE OPTICAL COATINGS WHICH ARE 'BLACK' IN THE VISIBLE AND 'WHITE' IN THE IR PORTIONS OF THE SPECTRUM. SPECTRAL AND INTEGRAL OPTICAL CHARACTERISTICS ARE DESCRIBED FOR FOUR AND SIX LAYER COATINGS ON COPPER AND ALUMINUM, CONSISTING OF ALTERNATING LAYERS OF NICKEL (10 TO 15 NANOMETERS THICK) AND SILICON DIOXIDE (80 TO 90 NANOMETERS THICK). THE COATINGS DESCRIBED FEATURE A SOLAR INTEGRAL ABSORPTION COEFFICIENT OF BETWEEN 0.92 AND 0.96; THE THERMAL INTEGRAL ABSORPTION COEFFICIENT AT 30 DEG C IS FROM 0.07 TO 0.12. THE OPTICAL CHARACTERISTICS REMAIN STABLE DURING PROLONGED SOLAR AND ULTRAVIOLET IRRADIATION AT 150 DEG C IN AIR AND UP TO 350 DEG C IN VACUUM.

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Acc. Nr.: AA0040535

Ref. Code: U R 0482

USSR

UDC 621.382.2/3 JPRS 50248

KONTSEVOY, YU. A., KOLTUN, M. M. and TATARENKOV, A. I.

"Polishing Quality Control Instrument for Semiconductor Plates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 67, Author Certificate No 258463 Class 2lg.

Abstract: This author certificate introduces an instrument for quality control of semiconductor plate polishing. The instrument consists of light source, a device for light focusing and modulation, a diaphragm and means for photosignal recording. To increase sensitivity, the instrument is provided with a means of multiple ultra-violet-light reflection, consisting of a set of mirror polish plates of the same material as the material to be tested, and a selective photocamera, whose maximum spectral sensitivity coincides with the spectral interval of the reflection peak of the tested semiconductor material.

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UDC 621.382.2/3

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KONTSEVOY, YU. A., KOLTUN, M. M. and TATARENKOV, A. I.

"Polishing Quality Control Instrument for Semiconductor Plates"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 1, 1970, p 67, Author Certificate No 258463 Class 21g.

Abstract: This author certificate introduces an instrument for quality control of semiconductor plate polishing. The instrument consists of light source, a device for light focusing and modulation, a diaphragm and means for photosignal recording. To increase sensitivity, the instrument is provided with a means of multiple ultra-violet-light reflection, consisting of a set of mirror polish plates of the same material as the material to be tested, and a selective photcamera, whose maximum spectral sensitivity coincides with the spectral interval of the reflection peak of the tested semiconductor material.

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UDC: 678.5.06:[539.2+620.173]

USSR

KANOVICH, M. Z., KOLTUNOV, M. A., and ROGINSKIY, S. L., All-Union Scientific-Research Institute of Glass Reinforced Plastics and Fiberglass; Moscow Institute of Electronic Machine Building

"Conditions for Producing High-Strength Orthogonally Strengthened Glass Reinforced Plastics With Good Compressive Strength Characteristics"

Riga, Mekhanika Polimerov, No 4, Jul-Aug 73, pp 655-660

Abstract: The authors study the conditions associated with the production of high compressive strength, orthogonally strengthened, glass reinforced plastics. Relationships are determined which relate the physico-chemical and geometric parameters of the composites into a system of inequalities. The satisfaction of this system ensures the production of a high-strength material with an assigned utilization factor. It is shown experimentally that these inequalities can be used as the first approximation for the optimal design of high compressive strength, orthogonally strengthened, composite materials.

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- 5 -

UDC 539.3

USSR

DERGUNOV, V. P., KOLTUNOV, M. A., Moscow Institute of Electronic Machine Building

"Dynamics of the Snap-Buckling of a Cylindrical Panel"

Kiev, Prikladnaya mekhanika, No. 11, Nov 71, pp 3-7

Abstract: The dynamics of the snap-buckling of a flat elastic cylindrical panel that is rectangular in design and hinge-supported on all sides and has a sag equal to the value of the upper critical sag is considered as a function of the physical nature of the loading medium (gas, liquid or solid). An algebraic equation relating the load and the deflection parameter is obtained by applying the Bubnov-Galerkin method to a system of nonlinear equations from the theory of flexible shells. It is shown that the initial deflection of the panel is equal to the upper critical deflection and that the nature of the loading medium (gas, liquid or solid) has a considerable effect on the time of snap-buckling of the shell. Two cases of loading are discussed: (1) the load q acting on the panel during the snap-buckling process remains constant; this type of load occurs in the loading of the panel by a compressed gas contained in a low-volume

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KOLTUNOV M.N.
UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

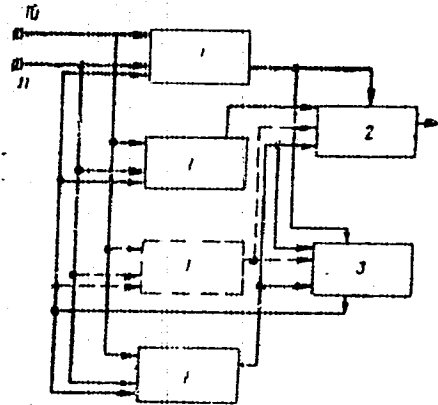
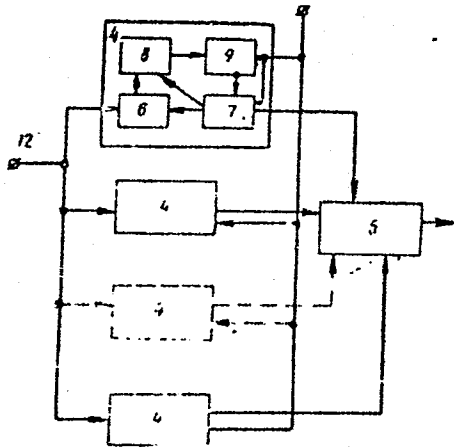
242226' PERIODIC SYNCHRONISATION can be used in radio communication system, where pulses division multiplexing is used. At the sending end, the generator of the periodic pulses is connected through a pulse divider to the coincidence gate and through the summing circuit to the output line. At the receiving end, to the input line is connected decipher of the synchronising pulse combination and the coincidence gate. Series of periodic pulses are applied to terminal 10. Pulse applied 10 initiates synchronisation. Pulses are divided in 1 and passed to summing circuit 2 and coincidence gate 3. At the receiving end pulses are passed to the decoding scheme 4 where all pulses wire to coincide with the master signal and coincidence gate 5 passes information to receive signal. Counter 6 counts number

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of pulses in each pulse position of the periods, then after tenth period, the result is compared in the comparison scheme 8. As a result, it can correct phase of the divider in the system 9. 2.12.67: as 1200685/26-9. M.N KOLTUNIV. (11.9.69.) Bul.15/25.4.69. Class 21a. Int.Cl. H041.



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19771526

KOLIU NOV, V. P.

chem-1

CHEMICAL INDUSTRY AND MACHINERY

So: JRES 59365
26 June 1973

(1)

LEADER IS SEED ON VARIOUS ASPECTS OF CHEMICAL INDUSTRY
Exposition of Consumer Chemistry Products

Article by V. P. Koliu, member of advertising department of the All-Union Scientific Research and Planning Institute of Chemical Industry, Alma-Ata, Kazakhstanskaya Pravda, Moscow, 6 April 1973, p. 47

An exhibition of Chemistry in Everyday Life is opening today in the Kazakh SSR Architects Union House.

We have asked V. P. Koliu, chief of the Soyuzkhimik Association to tell us about it.

The Chemistry in Everyday Life exhibition is being held in Alma-Ata for the first time. Its purpose is to familiarize industrial enterprises, scientific research institutes, and all visitors with chemical consumer goods produced by the firms and enterprises of the Soyuzkhimik Association. Various stands will have speakers on chemical consumer products put out by Kazakhstan's local industry.

Of interest are various washing, polishing, and stain-removing items, products used for motor vehicle maintenance, and products in aerosol containers for dyeing leather articles, freshening the air, and starching clothes. Incidentally, during the new five-year plan, the output of aerosol items will increase 500 percent.

Chemistry specialists will give visitors to the exposition all the necessary advice and will tell about the properties, purposes, and uses of products. This will be accompanied by short color films about our industry. In recent years, requirements with respect to quality, assortment, and external appearance of chemical consumer products have risen greatly. This has dictated the need for standardization -- out of 60 washing products, for example, only 15 are left. The consumer will have an easier time finding his bearings in the ocean of chemical services.

In addition to glass containers, polymer materials, which are both original and convenient, are being used successfully. The Alma-Ata residents will also see them at our exposition.

USSR

UDC 541.128

KOLTUNOV, V. S., and MARCHENKO, V. I.

"Study of the Reaction Between U(IV) and HNO₂ Catalyzed by Fe(III) Ions"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 6, Jun 72, pp 1465-1467

Abstract: Using a spectrophotometric method the kinetics of oxidation of U(IV) with nitrous acid in presence of Fe(III) ions and in nitric acid solution with constant ionic strength of $\mu = 3$ was studied. It has been shown that the reaction course is of the first order in respect to U(IV) and Fe(III) and of the zero order in respect to HNO₂. The reaction rate is inversely proportional to the concentration of H⁺ ions. Activation energy is 17.8 kcal/mole. On the basis of the results obtained a conclusion was drawn that the oxidation of U(IV) occurs in two stages and is limited by the interaction of U(IV) with Fe(III).

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USSR

UDC 621.793.1

KOLTUNOVA, L. N., PETRUSHIN, A. P., and ROYKH, I. L., Odessa Technological
Institute of the Food Industry

"Protection of Aluminum Alloys From Atmospheric Corrosion by Vacuum Chromium
Coatings"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 72-74

Abstract: The protective-decorative properties of vacuum chromium coatings on the AL2 alloy were investigated under atmospheric conditions. Sufficiently compact and plastic coatings, well coherent with the base, were produced. Corrosion tests of coatings conducted in chambers of tropical climate and sea fog showed that the vacuum chromated AL2 alloy with a 20 μ m-thick coating after 10 hrs testing in sea fog remained unchanged. Tests under industrial conditions revealed that on a 10 μ m-thick coating dull point areas of pitting corrosion developed, but the 20- μ m-thick coating deposited by evaporation in vacuum retained the initial decorative appearance even after tests of six months' duration. One figure, one table, two bibliographic references.

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USSR

UDC 620.192.4

KOLTUNOVA, I. N., PETRUSHIN, A. P., RADUTSKIY, M. A., ROYKH, I. L., Odessa Technological Institute imeni M. V. Lomonosov

"Comparative Study of the Physicomechanical Properties of Galvanic and Vacuum Chrome Coatings on AL2 Aluminum Alloy"

Moscow, Avtomobil'naya promyshlennost', No. 9, Sep 71, pp 33-34

Abstract: The structure and properties of galvanic and vacuum chrome coatings on AL2 Silumin are compared. Optimal chrome-plating regimes were selected. The galvanic chrome coating was applied from a standard electrolyte (150 g/l CrO_3 , 3 g/l H_2SO_4) at 48-52°C and a current density of 36-46 amp/in². The rate of application of the chrome coating under this regime was 0.3-0.4 μ/min. The vacuum chrome coating was produced with an electron-beam evaporator with a power of 7-8 kw which formed a band electron beam; this beam was directed with the aid of an appropriate deflecting electromagnetic system onto a crucible with evaporated chrome. The optimal regime for vacuum chrome-plating of AL2 Silumin was: surface temperature of Silumin before initial condensation of chrome vapors 325-350°C, vacuum ahead of initial evaporation of at least $1 \cdot 10^{-4}$ mm Hg, chrome-plated Silumin temperature of 50-70°C when the air enters the vacuum

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KOLTUNOVA, L. N., et al, Avtomobil'naya promyshlennost', No. 9, Sep 71, pp 33-34

chamber. The structures of the vacuum and galvanic chrome coatings were investigated by x-ray and metallographic methods and it was found that the average grain size of galvanic chrome was 0.1-0.2 μ and of vacuum chrome was 0.02 μ , indicating the vacuum coating was more finely dispersed than the galvanic. The vacuum coating had excellent adhesion to the base, was plastic and did not crack even under transverse polishing. The galvanic coating was brittle and the adhesion was poor at some places. The microhardness of the galvanic chrome on Silumin at a load of 20 g was 450-500 kg/mm² and that of the vacuum chrome was 500-530 kg/mm². Wear tests showed that for a thickness of less than 10 μ the vacuum chrome coatings have higher protective properties as compared with galvanic coatings both under humid atmospheric conditions and under complete immersion in a 3% solution of NaCl. This difference decreases for thicker coatings and for a thickness of more than 20 μ the protective properties of vacuum and galvanic chrome coatings on AL2 Silumin are the same.

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Coatings

USSR

UDC

ROYKH, I. L., KOVALENKO, V. B., KOLTUNOVA, L. N., Odessa Technological
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"Method of Measuring Porosity of Vacuum Aluminum Coatings"

Zavodskaya Laboratoriya, No 3, 1971, pp 314-315.

ABSTRACT: A microscope method was used to perform quantitative determination of the porosity and to investigate the distribution of pores by sizes for aluminum coatings of various thicknesses. Vacuum aluminum coatings separated from the base in 25% HNO_3 were studied in transmitted light. A formula is presented for the relationship between thickness of an aluminum coating and its porosity. Porosity is strongly dependent on thickness, decreasing exponentially with increasing coating thickness.

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81953z Corrosion protection of steel in a 3% sodium chloride solution by vacuum titanium coatings. Roikh, I. L.; Fedosov, S. N.; Koltunova, L. N. (Odess. Tekhnol. Inst., Odessa, USSR). *Zashch. Metal.* 1970, 6(1), 52-4 (Russ). Low-C cold-rolled steel strips were vacuum coated with Ti by its evapn. at an initial pressure 0.015-0.045 N/m² and 1800-900°. The condensation temp. was changed between 100 and 1250° by passing direct current through the strips. All coatings which were put on condensation temps. at >500° showed good adherence to steel, but the best protective properties were given by those put on at 450-850 and 1050-1190°. The former range yields a poreless structure and properties similar to solid β -Ti. The structure in the later range consists of a Fe-Ti alloy, mainly the intermetallic FeTi compd. The stable potential of strips covered at 1050-1190° was +0.45 V. These specimens did not show corrosion defects during 1.5 yr in a 3% NaCl soln. The thickness of Ti coatings should be $\geq 20 \mu$. J. Pietkiewicz

EB

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1/2 014 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SOME FACTORS AFFECTING MASS TRANSFER IN THE GAS PHASE ON GRID
PLATES -U-
AUTHOR--(03)-KOLTUNOVA, L.N., AEROV, M.W., BYSTROVA, Y.A.
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TOPIC TAGS--MASS TRANSFER, ELECTRON TUBE GRID, GAS PHASE REACTION
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN THE DISTANCES BETWEEN THE SLITS WERE REDUCED TO SMALLER THAN OR EQUAL TO MM AND THOSE BETWEEN THE ORIFICES TO SMALLER THAN OR EQUAL TO 5 MM, THE FOAM LAYER FORMED ON GRIDS OR PERFORATED PLATES OF SMALL DIAM., RESP., WAS VERY UNSTABLE, CONTG. EXCESSIVE AMTS. ON GASES. BY PASS GAS STREAMS WERE THUS FORMED, TAKING NO PART IN THE MASS TRANSFER ON THE PLATES AND GREATLY DECREASING THE EFFICIENCY.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNTHESIS OF NUCLEIC ACIDS, PHOSPHOPROTEIDS AND PHOSPHOLIPIDS IN
THE LIVER FOLLOWING ACUTE BILATERAL ISCHEMIA OF THE KIDNEYS -U-
AUTHOR--KOLTYGINA, T.I.

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

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CONTROL MARKING--NO RESTRICTIONS

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS ON RABBITS, WITH THE AID OF RADIOPHOSPHORUS (P PRIME32) A STUDY WAS MADE OF THE RATE OF SYNTHESIS OF DNA, RNA, PHOSPHOPROTEIDS AND PHOSPHOLIPIDS OF THE LIVER FOLLOWING ACUTE BILATERAL TWO AND THREE HOUR ISCHEMIA OF THE KIDNEYS. THERE WAS A RELIABLE REDUCTION OF THE SYNTHESIS OF RNA, PHOSPHOLIPIDS AND PHOSPHOPROTEINS OF THE LIVER THROUGHOUT THE WHOLE PERIOD OF THE DISEASE, THE MOST PRONOUNCED ON THE 4TH-7TH DAY AT THE TIME OF MARKED AZOTEMIA; THE SYNTHESIS BECAME NORMAL BY THE 21ST DAY. THE FIRST TO REDUCE WAS PHOSPHOLIPID SYNTHESIS (4 HOURS AFTER THE ISCHEMIA), DIMINUTION OF PHOSPHOPROTEID AND RNA SYNTHESIS FOLLOWING A LITTLE LATER. THE DEGREE OF CHANGES IN THE INDICES UNDER STUDY WAS IN DIRECT RELATIONSHIP TO THE DURATION OF ISCHEMIA OF THE KIDNEYS. FACILITY: KAFEDRA PATOLOGICHESKOY FIZIOLOGII VITEBSKOGO MEDITSINSKOGO INSTITUTA.

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